III. CLAIM AMENDMENTS

1. (Cancelled)

2. (Previously Presented) An integrated tunable RF resonator according to claim ~~43~~, **characterized** in that said substrate insulating layer is between the substrate and the first conducting layer.

3. (Previously Presented) An integrated tunable RF resonator according to claim ~~43~~, **characterized** in that the first conducting layer forms an interconnecting wire between the inductor coil and the capacitor electrode.

4-7 (Cancelled)

8. (Previously Presented) An integrated tunable RF resonator according to claim ~~43~~, **characterized** in that, a gap between the capacitor electrodes is an air gap.

9. (Previously Presented) An integrated tunable RF resonator according to claim 8, **characterized** in that the dielectric insulating layer is used as a sacrificial layer in creating the air gap.

10. (Cancelled)

11. (Previously Presented) An integrated tunable RF resonator according to Claim ~~10~~, characterised in that said dielectric insulating layer on top of said first capacitor electrode covers the electrode only partly.

12. (Previously Presented) An integrated tunable RF resonator according to Claim ~~10~~, **characterized** in that the dielectric insulating layer on top of said first capacitor electrode is silicon nitride.

13. (Previously Presented) An integrated tunable RF resonator according to Claim ~~10~~, **characterized** in that the dielectric insulating layer on top of said first capacitor electrode is polymer.

14. (Previously Presented) An integrated tunable RF resonator according to claim ~~10~~, **characterized** in that the second capacitor electrode is the ground electrode.

15. (Previously Presented) An integrated tunable RF resonator according to claim ~~10~~, **characterized** in that the third conducting layer is metal film.

16. (Previously Presented) An integrated tunable RF resonator according to claim ~~10~~, **characterized** in that the material of which the first conducting layer is constructed is selected from the group consisting of one of the following materials:

- a refractory metal, selected from the group consisting of Mo, W or TiW,
- a metal, selected from the group consisting of Au or Cu, or
- a doped electrode in bulk silicon.

17. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the material of which the second conducting layer is constructed is selected from the group consisting of one of the following materials:

- a metal, selected from the group consisting of Au or Cu,
- polysilicon, or
- monocrystalline silicon.

18. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the third conducting layer is metal.

19. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~ , **characterized** in that the third conducting layer is a electroplated layer with a substantially larger thickness than the thickness of the first and second conducting layers.

20. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the inductor coil comprises an electroplated metal layer on top of the third conducting layer.

21. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the inductor coil is arranged to be adjustable.

22. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the inductor coil has several segments, and it is arranged to be adjustable by means to change the number of active segments in the coil.

23. (Previously Presented) An integrated tunable RF resonator according to claim 22, **characterized** in that the segments of the inductor coil are changed by a micro-electro-mechancial switch realized in the same fabrication process with capacitors and inductors.

24. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the inductor coil is a planar inductor coil.

25 - 26 (Cancelled)

32 ~~27~~. (Previously Presented) A micromechanical tunable capacitor according to claim ~~25~~ 28 ~~35~~, **characterized** in that a tuning signal is arranged to be fed through the tuning electrode.

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~~28~~. (Previously Presented) A micromechanical tunable capacitor according to claim ~~43~~ 1, **characterized** in that, said second capacitor electrode is metal thin film.

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~~29~~. (Previously Presented) A micromechanical tunable capacitor according to claim ~~43~~ 1, **characterized** in that the second capacitor electrode is folded and/or corrugated to at least two levels with respect to the first capacitor electrode.

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~~30~~. (Original) A micromechanical tunable RF resonator according to claim 29, **characterized** in that the vertical portions of the folds and/or corrugates are fabricated thinner than the lateral portions of the second capacitor electrode.

31. (Cancelled)

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~~32~~. (Currently Amended) A micromechanical tunable capacitor according to ~~claim 31~~claim ~~43~~ 1, **characterized** in that, the said substrate is a semiconductor material.

33 - 42 (Cancelled)

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~~43~~. (Currently Amended) An integrated tunable RF resonator comprising an integrated inductor and a micromechanical tunable capacitor connected in series or in parallel, comprising

- a substrate (3),

- a substrate insulating layer (5),

- a first conducting layer (4) for forming a first capacitor electrode (8) and control electrodes (9) for applying a control voltage,

- a second conducting layer (6) for forming a second capacitor electrode (11a, 11b) that is movable ~~with~~ relative to the first capacitor electrode (8);

a third conducting layer for forming at least part of the inductor coil;

- wherein said control electrodes (9) are used to create an electrostatic force ~~to~~ on said movable ~~first~~ second ~~electrode~~ electrode 11 ~~(8)~~ for tuning the capacitance of the capacitor,

characterized in that

- a dielectric insulating layer (7) is used to at least partly cover said first capacitor electrode (8) to prevent the galvanic contact between said first capacitor electrode (8) and said second capacitor electrode (11),

wherein a portion of an exterior surface of said substrate (3) is at least partly removed at the location of the said inductor coil (1) and the said first capacitor electrode (8) and further wherein said substrate (3) is removed up to said first capacitor electrode or up to said substrate insulating layer (5)

said substrate insulating layer (5) is arranged as a suspended structure for the said first capacitor electrode (8) and the inductor coil (1).

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~~14~~. (Previously Presented) An integrated tunable RF resonator according to claim ~~13~~, **characterized** in that the dielectric insulating layer (7) is preventing the galvanic contact between the first conducting layer (8) and the second conducting layer (6).

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~~15~~. (Currently Amended) A micromechanical tunable capacitor, comprising at least of one counter electrode ~~on~~ forming a first plate of the capacitor, and at least one active electrode and at least one tuning electrode ~~on~~ forming a second capacitor plate, said plates separated by a dielectric gap **characterized** in that,

- each of ~~the~~ said electrodes is a metal film formed on a substrate (3),

- at least one of the capacitor plates is arranged to be a flexible and elastic structure,

- ~~the~~ said electrodes on the other of said at least one ~~of said electrodes of the~~ capacitor ~~plates~~ plate is ~~are~~ covered by an insulating layer (7) to prevent a galvanic contact between the said electrodes on the first and second capacitor plates; and

wherein a portion of an exterior surface of said substrate (3) is at least partly removed at the location of said at least one

active capacitor electrode (8), wherein said substrate (3) is removed up to said active capacitor electrode (8).

33 ~~46~~. (Previously Presented) A micromechanical tunable capacitor according to claim 28 ~~31 45~~, **characterized** in said flexible and elastic capacitor plate is clamped from two opposite sides and that the active electrode is arranged to be positioned further from said opposite sides than at least one tuning electrode.

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29 ~~34~~ ~~47~~. (Previously Presented) A micromechanical tunable capacitor according to claim 28 ~~31 45~~, **characterized** in that the dielectric gap is arranged to be narrower between at least one active electrode and at least one counter electrode than between at least one tuning electrode and at least one counter electrode.

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6 ~~48~~. (Previously Presented) An integrated tunable RF resonator according to claim ~~47~~, **characterized** in that a portion of said second conducting layer is used for forming at least part of the inductor coil.

30 ~~35~~ ~~49~~. (Previously Presented) A micromechanical tunable capacitor according to claim 28 ~~31 45~~, **characterized** in that said active electrode and said at least one tuning electrode are formed in the same layer.

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31 ~~36~~ ~~50~~. (Previously added) A micromechanical tunable capacitor according to claim 28 ~~32 45~~, **characterized** in that said capacitor plate having a flexible and elastic structure is electrically connected to the same potential as the substrate.

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51. (Previously added) An integrated tunable RF resonator, according to claim 43, **characterized** in that the moveable second capacitor electrode is electrically connected to the same potential as the substrate.

52. (Previously added) An integrated tunable RF resonator, according to claim 43, **characterized** in that the dielectric insulating layer is used as a sacrificial layer to create an air gap between said first capacitor electrode and said second capacitor electrode.